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MEMORANDUM

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REORGANIZED

TO: Ed Sierra, Region VI RPO

THRU: K. H. Malone, Jr., FITOM

FROM: Thomas Lensing, FIT Biologist J.S.

DATE: January 2, 1990 **TDD:** F-06-8910-34 **PAN:** FLA0361PAA

SUBJECT: Preliminary Assessment for the Larry Landry Dump Intracoastal City, Vermillion Parish, LA (LAD985169804)

X Rep Sa vol. 1

I. Site Information

The Larry Landry Dump (LLD) is located off Louisiana Highway 333, one mile north of Intracoastal City, Vermillion Parish, Louisiana (Figure 1). The geographic coordinates are 29°47′52" north latitude and 92°09′03" west longitude. The site is located on private land owned by [redacted] who leased part of the land to Mr. Larry Landry. [redacted] Landry used the land as an open dump for various oil field and solid wastes from offshore drilling rigs (Reference 6).

The purpose of this investigation is to determine from the off-site reconnaissance inspection and data collection whether the site poses a threat to human health and the environment.

II. Background/Operating History

The LLD operated in the early 1980s. Operations were terminated at the site when the owner proposed raising the rent (Reference 6). Waste handling and disposal practices consisted of hauling the waste in a truck and indiscriminately dumping the waste on the ground (Figure 2, Reference 6).

[redacted] a concerned citizen, and Mr. Paul Conzelmann of SUBRA Laboratories in New Iberia, Louisiana, conducted a sampling inspection at the site in 1984. Analysis of on-site soil and water samples indicated high concentrations of salt, oil, grease, barium, cadmium, chromium, lead and zinc. The samples were not analyzed for organic constituents.

Reviewed BJG 1/10/90

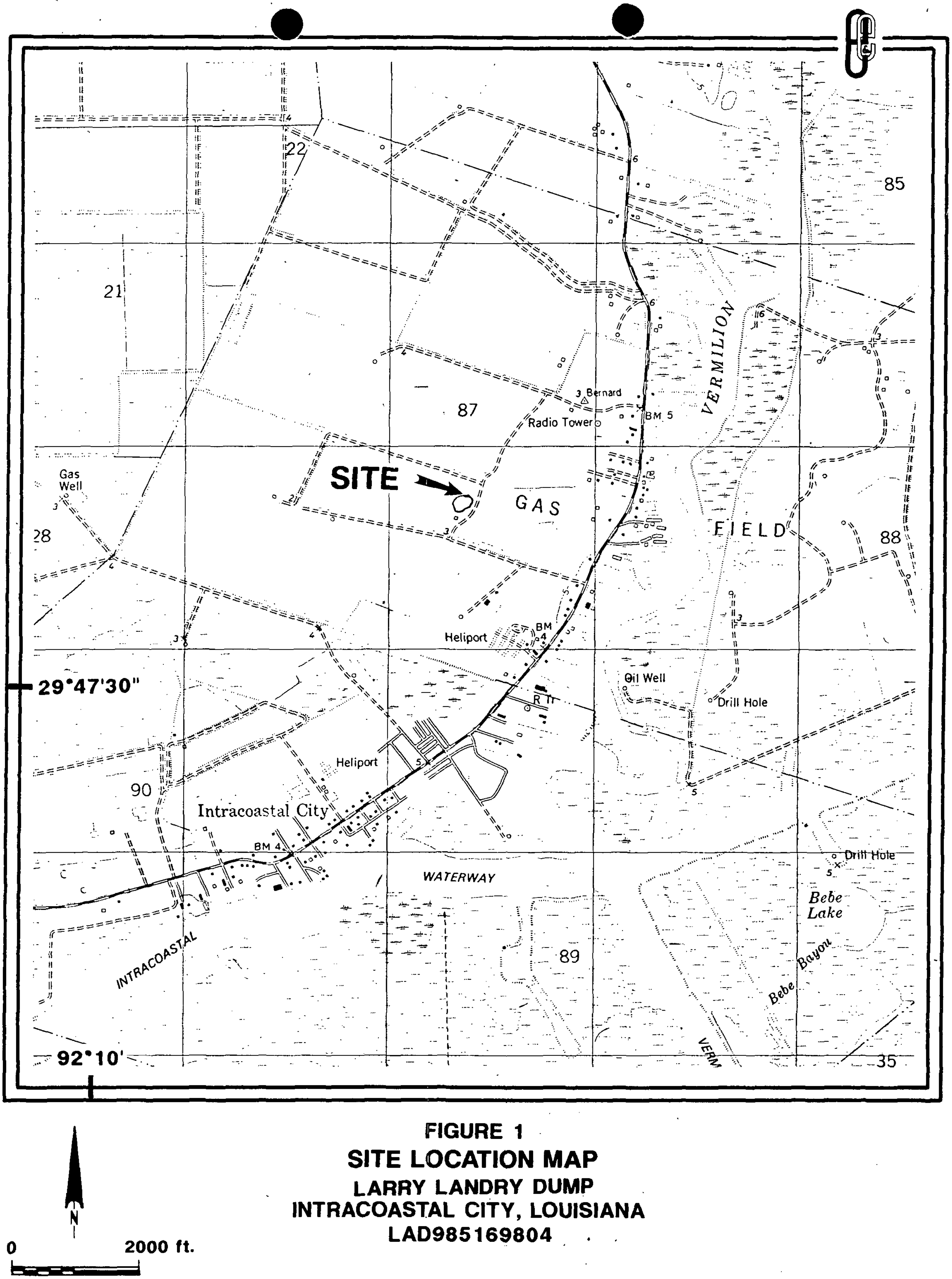


FIGURE 1

SITE LOCATION MAP

LARRY LANDRY DUMP
INTRACOASTAL CITY, LOUISIANA
LAD985169804

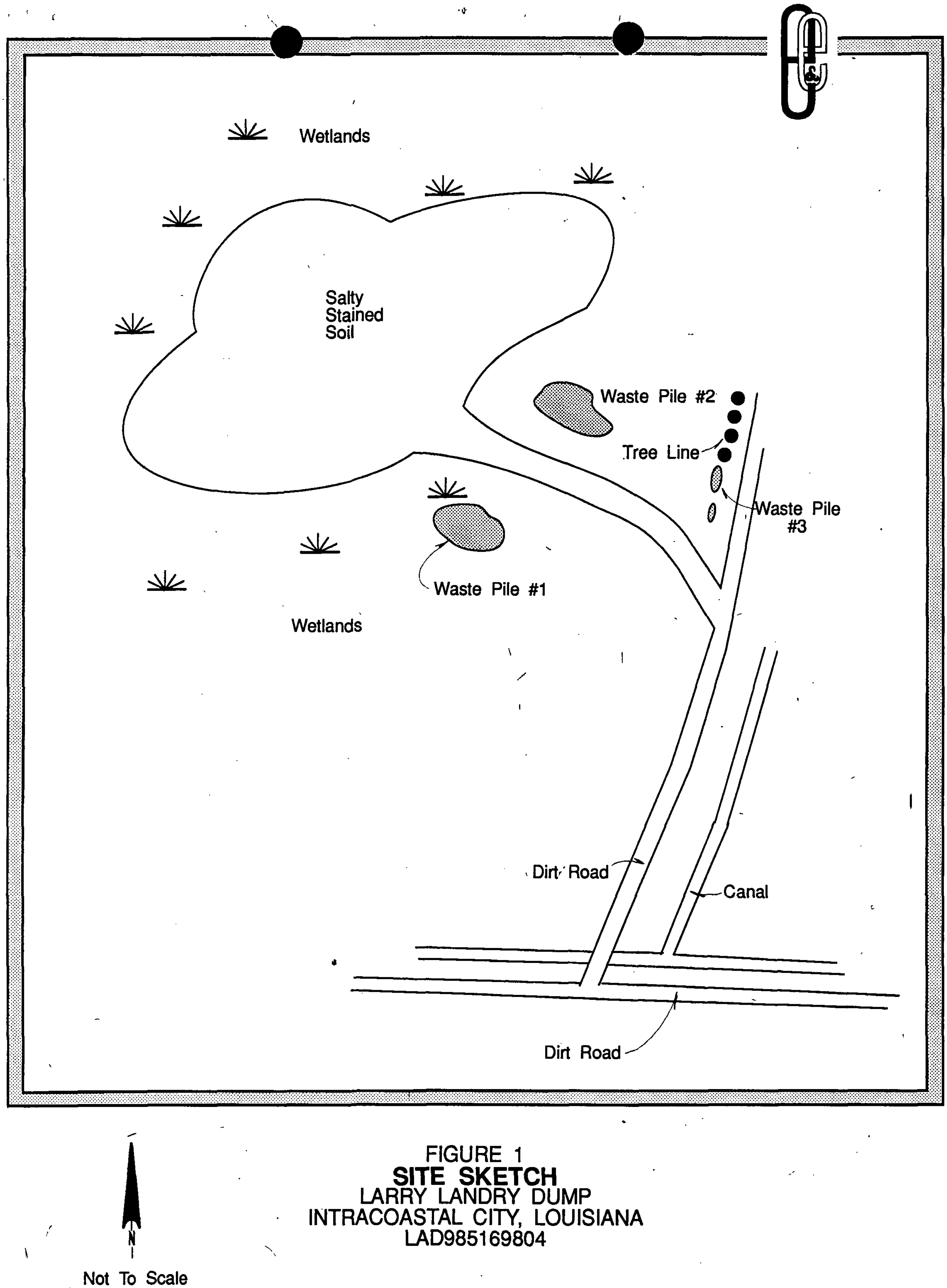


FIGURE 1
SITE SKETCH
LARRY LANDRY DUMP
INTRACOASTAL CITY, LOUISIANA
LAD985169804

An off-site reconnaissance inspection was conducted by Thomas Lensing of the FIT on November 14, 1989. [redacted] and Mr. Conzelmann accompanied the FIT to the site. Due to a locked gate at the entrance, the FIT was unable to assess the condition of the site. [redacted] and Mr. Conzelmann supplied the FIT with 1984 photographs of the site. A contact log and photographs are attached. The extent of involvement of Louisiana Department of Environmental Quality (LDEQ) is unknown.

III. Waste Containment/Hazardous Substance Identification

The site operated as an open dump for various solid and liquid wastes generated from offshore oil rigs. The site operator did not initiate any artificial means of containment from the air, ground water or surface water routes. The piles of waste were disposed directly onto the ground. The containers in which the wastes were placed are deteriorating (Photographs 4, 5, 6, 10).

IV. Pathway Characteristics

A. Air Pathway Characteristics

The site has been sampled only by [redacted]nd Mr. Conzelmann. Analysis of the samples revealed high concentrations of inorganic constituents such as barium, cadmium, chromium, lead and zinc. The gaseous and particulate mobility potentials of these contaminants are low. The site was not sampled for organics (Reference 7).

B. Ground Water Characteristics

The Chicot Aquifer system consists mostly of thick sand and gravel deposits that dip and thicken southward from southern Vernon and Rapides Parishes. The aquifer thins slightly to the west and continues into Texas. To the east, the aquifer thickens toward the axis of the Mississippi embayment trough where it is cut or overlain by the alluvium of the Atchafalaya and Mississippi Rivers; thus, the Chicot Aquifer system and the Atchafalaya aquifer are hydraulically connected (Reference 3, page 4).

East of Calcasieu Parish, the massive end of the Chicot Aquifer system has been divided into two units called the upper sand and the lower sand. The upper sand is connected to the Abbeville Unit (Reference 3, page 4). This shallow sand is a distinct hydrologic unit throughout most of the lower Vermillion River Basin. The thickness of sand usually ranges from 100 to 250 feet. Due to large scale ground water use for irrigation, the Vermillion River has been recharging the Chicot Aquifer near Bancker, five miles north of the site (Reference 3, page 21).

A geohydrologic cross section of the site's location revealed that the LLD is underlain by 200 feet of clay. Underlying the clay are 150 feet of freshwater sand. This is the Abbeville Unit (Reference 3, page 27-28).

The nearest well, located 2,200 feet east of the site, is owned by Ms. [redacted] [redacted]nformed the FIT that her well was dug in

1975 to a depth of approximately 500 feet. The well casing is perforated at 500 feet. [redacted] uses her well water for domestic purposes and purchases her own drinking water. Residential Well Sampling Information sheets are attached.

A net precipitation of 21.01 inches has been estimated (Reference 12).

C. Surface Water Characteristics

The site is surrounded by surface water (Photograph 1). Since waste disposal practices were poorly initiated and the operator made no effort to establish any run-on control, leachate migration from the site to the adjoining marsh is highly probable (Photographs 1-4, Reference 6). Contaminants from the site could enter surface water from any direction. The drainage would flow into a north-south ditch that parallels the access road. The drainage ditch empties into a west-east ditch that empties into the Vermillion River one-half mile downstream. The Vermillion River makes up the next five miles of the 15 mile segment. The final nine miles of the surface water pathway are in Vermillion Bay (Reference 2). The Vermillion River is designated usable for primary and secondary recreation and for propagation of fish and wildlife (Reference 9). Potential sensitive environments affected by the in-water segment consist of wetlands (estuarine), a state wildlife refuge and habitats used by the endangered Falco peregrinus anatum (peregrine falcon) and Lepidochelys kempii (Atlantic Ridley Turtle) (Reference 2; Reference 11).

The estimated upgradient drainage area is less than 50 acres (Reference 2). The FIT estimated that the Vermillion River and Vermillion Bay have an annual average stream flow of less than five cubic feet per second (cfs). The site is located in a 100 year flood plain (Reference 4). The two year, 24 hour rainfall is estimated at 5.5 inches (Reference 10).

D. On-Site Pathway Characteristics

During the reconnaissance inspection, a gate on the access road was locked and "No Trespassing" signs were posted. Inorganics are known to be present at the site and organic compounds could exist (Reference 7). The site owner made no effort to contain the wastes from the surrounding wetlands.

V. Targets

The Maximally Exposed Individual (MEI) for an air target is the [redacted] residence. [redacted] lives [redacted] of the site. The population within four miles was estimated from a house count on a U.S.G.S. 7.5 Minute Topographic Map and by multiplying the number of houses times the most recent U.S. census factor for Vermillion Parish (2.98 people per household) (Reference 4). There are approximately 510 people within four miles of the site. Land use in the area consists of industrial with intermittent farmland (Reference 5). Estuarine wetlands and habitats known to be used by endangered species, the Peregrine Falcon and the Atlantic Ridley Turtle, are within four miles of the site (Reference 2; Reference 11).

The [redacted] residence also represents the MEI for ground water. It is beli[redacted]at all residents within four miles of the site obtain water from private wells. Ground water is also used for irrigation of rice and crawfish farms (Reference 3, p. 21, 5).

Ground water that supplies the residential and irrigation wells is drawn from the Chicot Aquifer, which is designated as a Sole Source Aquifer (Reference 8). There are no drinking water intakes within the 15 mile in-water segment. The Vermillion River is deemed usable for primary and secondary recreation and for propagation of fish and wildlife (Reference 9). There is no on-site resident population. "No Trespassing" signs are posted along the access road. The site is completely surrounded by surface water (Photograph 1).

VI. Conclusions

The LLD was used as an open dump for various solid and liquid oil field wastes. The wastes were indiscriminantly dumped directly onto the ground. The site operator made no effort to contain the wastes from the surrounding wetlands. Photographs indicate that most of the wastes are stored in corroding and deteriorating drums. The site was sampled for inorganics. High levels of barium, cadmium, chromium, lead and zinc have been detected. No organic analysis was conducted. The closest residence is the home o[redacted]who operates the closest ground water well. Gro[redacted]domestic and irrigation purposes. The water is drawn from the Chicot Aquifer, which is designated as a Sole Source Aquifer in southwestern Louisiana. Surface water is deemed usable for primary and secondary recreation and for propagation of fish and wildlife. Along the 15 mile migration pathway, surface water encounters wetlands, a state wildlife refuge and habitat used by the endangered Peregrine Falcon and Atlantic Ridley Turtle.

The FIT was unable to acquire documentation of other regulatory involvement. The extent to which the LDEQ was involved with the site is unknown.

Photos taken and provided by John Boudreaux and Paul Conzelmann

PG 1 OF 6

#1

[redacted] /P.Conzelmann

DATE / TIME / DIRECTION

11-85/unk/ North

COMMENTS

aerial photograph of site. The site is surrounded by surface water. Stained soils from previous dumping

[redacted] /P.Conzelmann

DATE / TIME / DIRECTION

11/85/unk/ West

COMMENTS

above ground dump location on-site. waste pile #1

NO. 2

#3

PHOTOGRAPHER/WITNESS

(b) (6) [redacted] / P. Conzelmann

DATE / TIME / DIRECTION

8-84 / unk / unknown

COMMENTS

WAste pile #2. Scattered trash, scrap metal, and drums of unknown quantity and contents.

PHOTOGRAPHER/WITNESS

(b) (6) [redacted] / P. Conzelmann

DATE / TIME / DIRECTION

8-84 / unk / unk

COMMENTS

WAste pile #3. WAste drums. Corroded and apparently deteriorated.

NO. 4

PG 3 OF 6

#5

PHOTOGRAPHER/WITNESS

(b) (6) [redacted] l Conzelmann

DATE / TIME / DIRECTION

8-84/unkn/Unknown

COMMENTS

Open, unsealed, nonintact container. Visual observation of an observed release

PHOTOGRAPHER/WITNESS

(b) (6) [redacted] P. Conzelmann

[redacted] IRECTION

8-84/unkn/unkn.

COMMENTS

Partially buried containers. Some containers show signs of corrosion and deterioration

NO. 6

#7

PHOTOGRAPHER/WITNESS

[redacted] /P. Conzelmann

DATE / TIME / DIRECTION

8-84 / unk. / unkn

COMMENTS

Dump area. Lack of vegation due to dumping and fill.

PHOTOGRAPHER/WITNESS

[redacted] Pa Conzelmann

DATE / TIME / DIRECTION

8-84 / unk. / unk.

COMMENTS

Footprint made by Conzelmann while walking on the site.

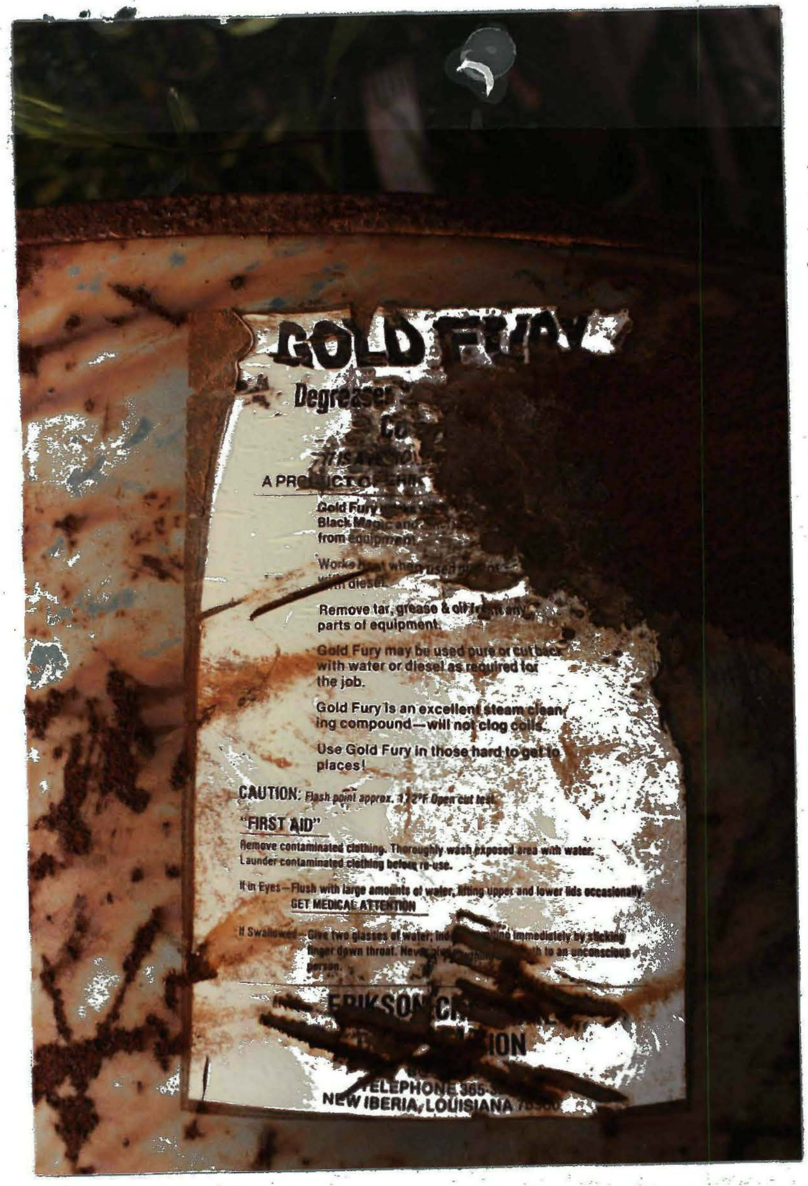
NO. 8

#9

PHOTOGRAPHER/WITNESS
(b) (6) [redacted] /P. Conzelmann
DATE / TIME / DIRECTION
8-84/unk/unk
COMMENTS
Uncontained waste deposited directly on the ground

PHOTOGRAPHER/WITNESS
(b) (6) [redacted] /P. Conzelmann
DATE / TIME / DIRECTION
8-84/unk/unk/
COMMENTS
Exposed container adding to probability of a release to the environment

NO. 10



#11

Photographer / Witness

[redacted]/P. Conzelmann

Date / Time / Direction

8-84 / unk / unk

Comments: Labeled drum of waste on-site.

Photographer / Witness

[redacted]/P. Conzelmann

Date / Time / Direction

8-84 / unk / unk

Comments: Dump area used by Landry

#12

RESIDENTIAL WELL SAMPLING INFORMATION

Well #

1. Name, address and phone number of resident (include county and zip code)

Vermillion Parish

2. Date well was dug 1975

3. Depth of well 500 feet

4. Depth to static water Unknown

5. Is the well cased? Yes x No Unknown

   If so, to what depth? Unknown

   What type of casing is used? Stainless Steel

6. Is well screened? Yes x No Unknown

7. Is the well used for residential purposes, or for watering livestock?

   The well water is used for all domestic purposes except for drinking.

8. Any other pertinent information?

   [redacted] purchases her drinking water.

RESIDENTIAL WELL SAMPLING INFORMATION

Well #

1. Name, address and phone number of resident (include county and zip code)

2. Date well was dug Unknown

3. Depth of well 500 feet

4. Depth to static water Unknown

5. Is the well cased? Yes ___ No ___ Unknown x

If so, to what depth? N/A

What type of casing is used? Unknown

6. Is well screened? Yes x No ___ Unknown ___

7. Is the well used for residential purposes, or for watering livestock?

Well water is used for cooking, bathing, etc. Not for drinking.

8. Any other pertinent information?

[redacted] purchases his own drinking water.

REFERENCES

Reference Number	Description of the Reference
01	Hazard Ranking System (HRS) for Uncontrolled Hazardous Substance Releases; Appendix A of the National Oil and Hazardous Substances Contingency Plan; Proposed Rule. 40 CFR Part 300. December 23, 1988.
02	U.S.G.S. 7.5 Minute Series Topographic Maps. Intracoastal City, LA, Hebert Lake, LA, 1975; Fearman Lake, LA and Redfish Point, LA, 1979.
03	The Occurrence of High Concentrations of Chloride in the Chicot Aquifer System of Southwestern Louisiana. Water Resources Technical Report #33. 1984.
04	Record of Communication. To: Richard Minvielle, Sellers Dubroc & Assoc., Abbeville, La. From: Thomas Lensing, Jr., FIT Biologist. EPA Region VI. Re: Flood Potential of Vermillion River and U.S. Census Population Factor for Vermillion Parish. LAD985169804. November 28, 1989.
05	Record of Communication. To: Elray Schexnaider, J. E. Schexnaider & Assoc. From: Thomas A. Lensing, Jr., FIT Biologist. Re: Land Use in the Four Mile Radius and Soil Types at the Larry Landry Dump. LAD9085169804. December 4, 1989.
06	Record of Communication. To: [redacted] Concerned Citizen and Paul Conzelmann, SUBRA Laboratories, New Iberia, LA. From: Thomas A. Lensing, Jr., FIT Biologist. EPA Region VI. Re: Larry Landry Dump. LAD985169804. November 14, 1989.
07	Chemical Analysis of Samples Collected at Larry Landry Dump by SUBRA Labs, New Iberia, LA. August 17, 1984.
08	U.S. EPA Memorandum. To: Ed Sierra, FIT RPO. From: Deborah A. Vaughn-Wright, Region VI NPL Coordinator. Re: Sole Source Aquifers. November 21, 1989.
09	Louisiana Water Control Regulations. Department of Environmental Quality Office of Water Resources. March 9, 1984.
10	Memorandum. To: Phase II Project Managers. From: Lauren Ray, E & E Host. Re: Two Year, 24 Hour Rainfall Map. August 5, 1988.

federal register

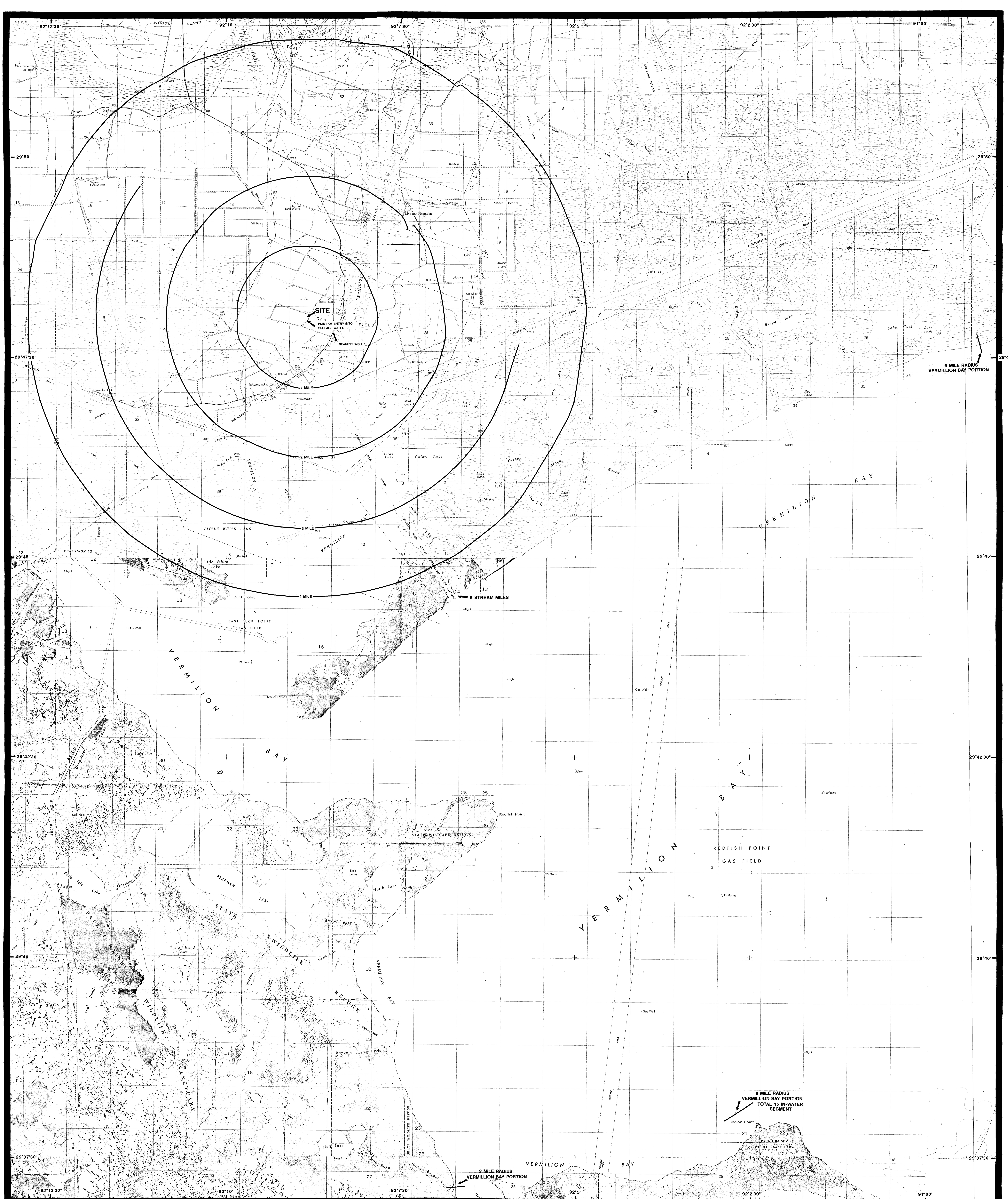
Friday
December 23, 1988

Part III

Environmental Protection Agency

40 CFR Part 300

Hazard Ranking System (HRS) For Uncontrolled Hazardous Substance Releases; Appendix A of the National Oil and Hazardous Substances Contingency Plan; Proposed Rule



REFERENCE: 2

LEGEND

ROAD CLASSIFICATION

Heavy-duty — Light-duty

Medium-duty — Unimproved dirt

Interstate Route — U. S. Route — State Route

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Site Name: LARRY LANDRY DUMP
Location: INTRACOASTAL CITY, LOUISIANA
Site ID: LAD985169804

USGS TOPOGRAPHIC MAPS

Name: INTRACOASTAL CITY, LA. Date: 1975 Revised: Contour Interval: 5 ft.	Name: HEBERT LAKE, LA. Date: 1975 Revised: Contour Interval: 5 ft.
Name: FEARMAN LAKE, LA. Date: 1979 Revised: Contour Interval: 5 ft.	Name: REDFISH POINT, LA Date: 1979 Revised: Contour Interval: 5 ft.

Quadrangle Location

SCALE 1:24 000

1 ½ 0 1 MILE

REF. 03

STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF PUBLIC WORKS

WATER RESOURCES
TECHNICAL REPORT
NO. 33

THE OCCURRENCE OF HIGH CONCENTRATIONS OF CHLORIDE IN THE CHICOT AQUIFER SYSTEM OF SOUTHWESTERN LOUISIANA

Prepared by
UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
In cooperation with
LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF PUBLIC WORKS
1984

STATE OF LOUISIANA

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

OFFICE OF PUBLIC WORKS

Water Resources

TECHNICAL REPORT NO. 33

THE OCCURRENCE OF HIGH CONCENTRATIONS OF CHLORIDE IN THE CHICOT AQUIFER SYSTEM OF SOUTHWESTERN LOUISIANA

By

Dale J. Nyman

U.S. Geological Survey

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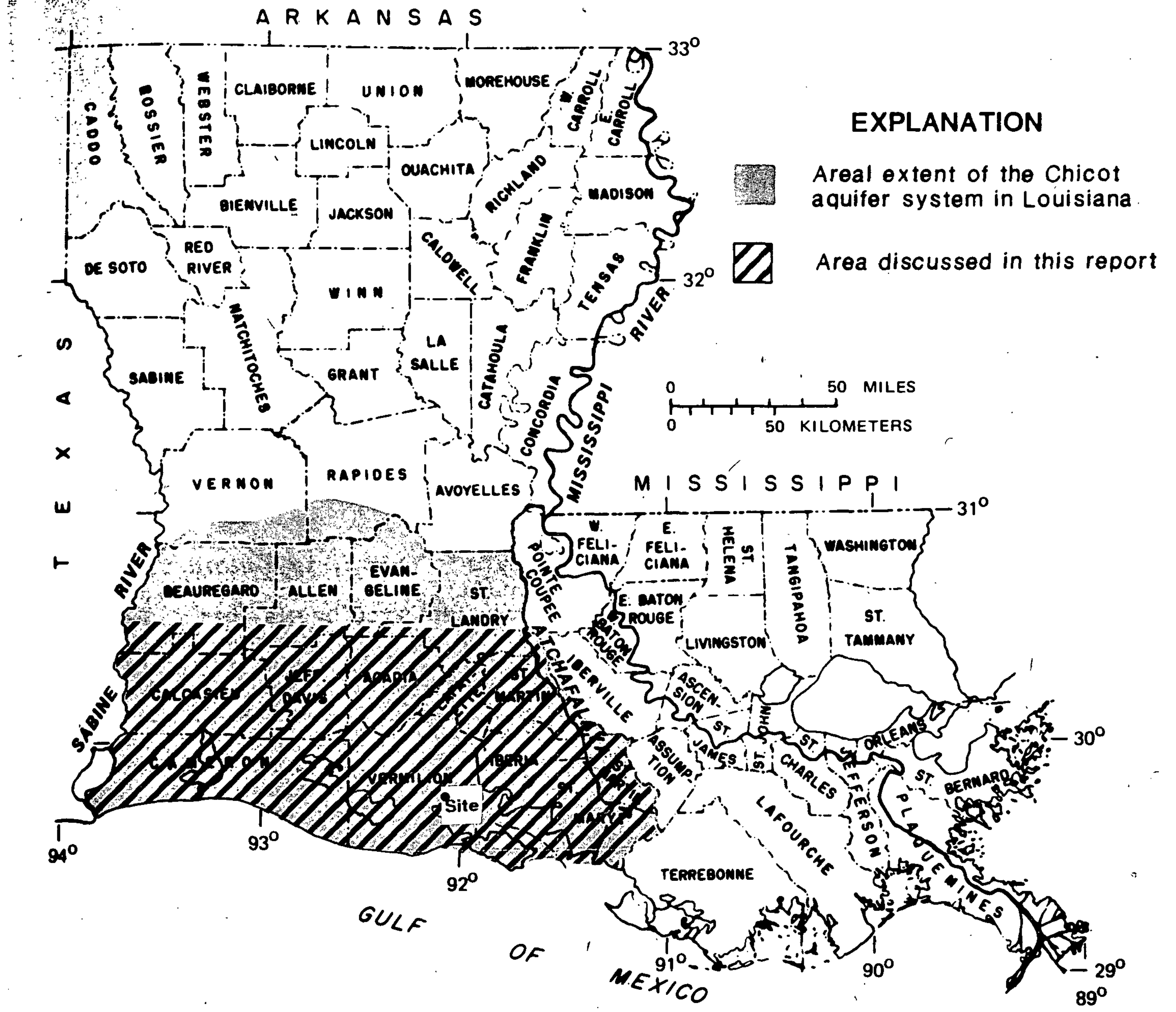

Figure 1.--Location of project area.

(deceased) formerly of the Department of Environmental Sciences at Louisiana State University, and to Mr. R. H. Wallace, Jr. of the Gulf Basin Hydrogeology Project (U.S. Geological Survey). Mr. R. M. Lawrence, Offshore Division Geologist for AMOCO, New Orleans office, and Mr. Fines Martin, Division Manager for Superior Oil Co. at Lafayette, Louisiana, provided information for the hydrogeologic sections. Historical insight was provided by Mr. H. G. Chalkley (deceased) of the Sweetlake Land and Oil Co., and by Mr. V. S. Scoggins (deceased), founder of Coastal Water Wells, Inc., of Welsh, Louisiana.

Special appreciation is expressed to D. G. Sheppard, S. T. Mumme, and J. R. McKay; formerly graduate students at Northeast Louisiana University, Louisiana State University, and Louisiana Technical University, respectively; who assisted in the preparation of the geohydrologic maps.

This study was made through a cooperative program between the U.S. Geological Survey and the Louisiana Office of Public Works, Department of Transportation and Development. Electrical logs of oil-test wells were made available by the Louisiana Office of Conservation, Department of Natural Resources, and the U.S. Geological Survey, Conservation Division (now Minerals Management Service).

CHICOT AQUIFER SYSTEM

The Chicot aquifer system, as used in this report, is a massive sand in the outcrop area and the northern half of the project area; it is divided downdip into two or more sand layers separated by clay beds. East of Calcasieu Parish the massive sand of the Chicot aquifer system has been divided into two units called the "upper sand" and "lower sand"; whereas in Calcasieu and Cameron Parishes, the massive sand has been divided into three units called the "200-foot", "500-foot", and "700-foot" sands (table 1). The "upper sand" is connected to the "200-foot" sand, Abbeville unit, and Atchafalaya River alluvium; thus, together these units constitute essentially one hydrologic unit. The "lower sand" is connected to the "700-foot" sand. The "500-foot" sand is largely isolated except where it merges with the "700-foot" sand toward the outcrop area (fig. 2).

Geohydrology

The Chicot aquifer system was named by Jones and others (1954, p. 7) for a deltaic sequence consisting mostly of thick sand and gravel deposits that dip and thicken southward from southern Vernon and Rapides Parishes. The aquifer thins slightly to the west and continues into Texas. To the east the aquifer thickens toward the axis of the Mississippi Embayment trough where it is cut by or overlain by the alluvium of the Atchafalaya and Mississippi Rivers; thus, the Chicot aquifer system and Atchafalaya aquifer are hydraulically connected. The aquifer units thicken gulfward but become increasingly subdivided by clays and individual sand beds may thin and become finer textured.

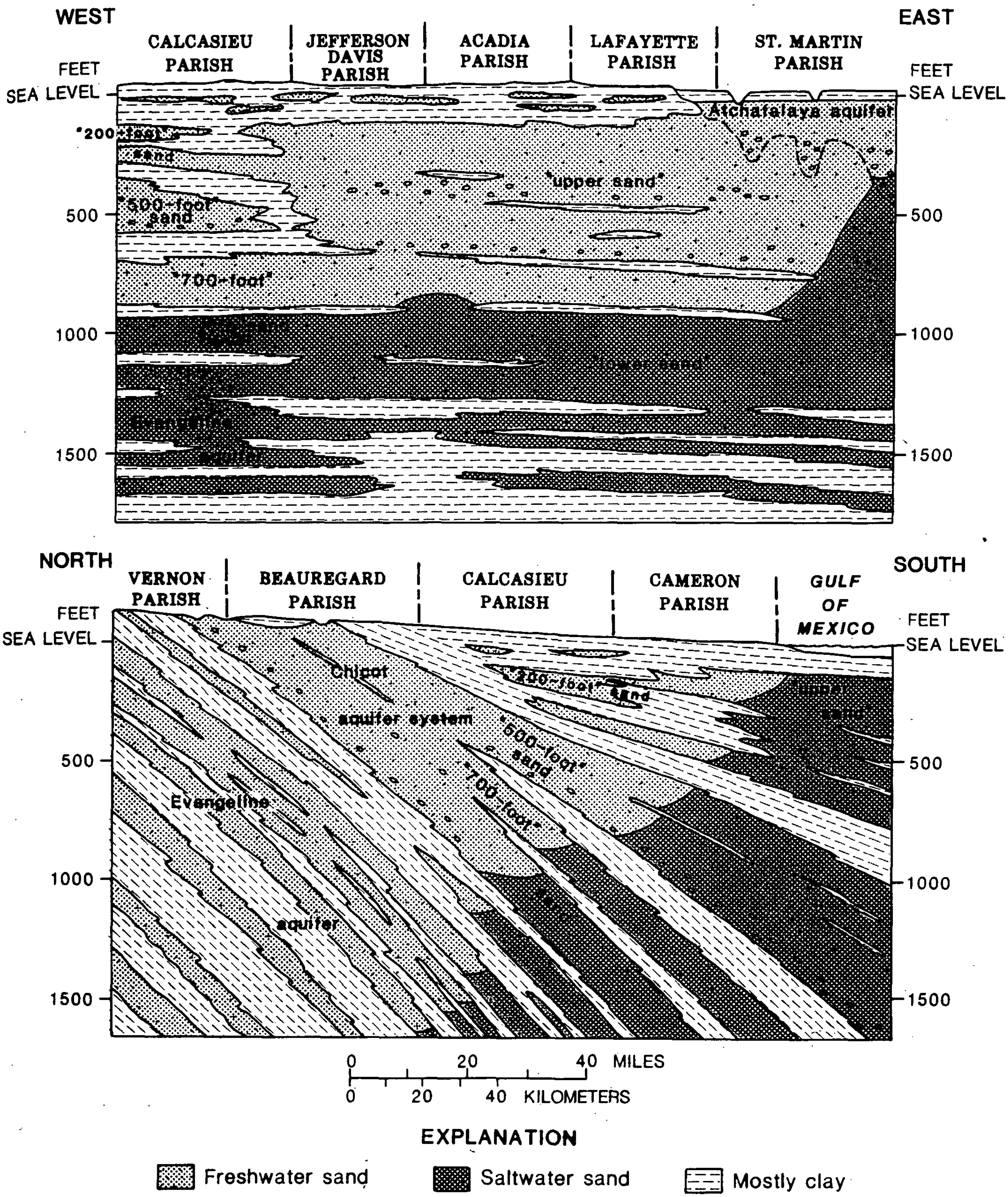

Figure 2.--Idealized geologic sections through southwestern Louisiana.

regional subsurface correlation of terrace formations is not obvious, therefore the names "upper sand" and "lower sand" are used to designate units of the Chicot aquifer system in the eastern part of the report area.

Ground-Water Hydrology

Water Levels

Water levels in the Chicot aquifer system have ranged from near land surface to about 150 ft below land surface. Water levels are lowest in the Lake Charles industrial area and highest near rivers in the recharge area (pl. 1).[4] Annual water-level fluctuations range from 2 to 3 ft in essentially unpumped areas in parts of Beauregard and Allen Parishes and from 20 to 40 ft near pumping centers for rice irrigation in Jefferson Davis and Acadia Parishes. Total pumpage from the Chicot aquifer system averaged about 1 Bgal/d in 1980 (Walter, 1982). Centers of concentrated pumping cause cones of depression in the potentiometric surface of the aquifer that induce the flow of water from all directions causing a slope (gradient) in the water-level surface toward the area of heavy pumping. The slope of the water-level surface is indicative of the rate of ground-water movement; the steeper the slope the faster ground water moves through the aquifer, assuming aquifer transmissivity and other factors are constant.

Water levels in wells tapping the "200-foot", "500-foot", and "700-foot" sands in the Lake Charles area are significantly different near pumping centers. Levels of the "200-foot" sand are the nearest to land surface, levels of the "500-foot" sand generally are farthest below land surface, and the water level in the "700-foot" sand is generally intermediate. Drawdown of the potentiometric surface of the "500-foot" sand was primarily caused by industrial ground-water withdrawals, which averaged about 100 Mgal/d during 1980 (Walter, 1982). The center of the drawdown cone in the "200-foot" sand is primarily related to withdrawals of water from the "500-foot" sand and leakage between the two sands. The cone of depression for the "700-foot" sand is caused by ground-water withdrawals averaging about 10 Mgal/d and leakage to the "500-foot" sand.

The water-level map for 1903 (Jones and others, 1954, pl. 17; 1956, pl. 13) shows the natural southward gradient that probably existed before extensive ground-water development began. Rain falling on the recharge areas of the Chicot aquifer system during pre-development years provided base flow to the Sabine, Vermilion, and Atchafalaya Rivers (and other coastal streams) and also created the hydrostatic pressure that flushed saltwater southward and stabilized the saltwater wedge in the coastal area.

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[4] The regional potentiometric map is based on the massive sand in the northern part of the area, the "upper sand" in the coastal area, and the "200-foot" sand in the Lake Charles area.

The water-level gradients that sloped southward in 1900 have now been reversed in the coastal area and slope northward toward pumping centers in Calcasieu, Jefferson Davis, and Acadia Parishes (pl. 1). The northward gradient is very low (generally less than 1 ft/mi) in the coastal wetlands area because of little pumping and because of recharge from vertical leakage. Because of these factors, the northward movement of the freshwater-saltwater interface has been very slow and probably averages less than 100 ft/yr in the gulf coast area. However, a potentially serious problem may develop if the water-level gradient near the coast is increased. Saltwater encroachment, which has occurred in the Texas-Gulf region at Houston and Orange (Baker and Wall, 1976, p. F21; Gabrysch and McAdoo, 1972, p. 10), could render large parts of the Chicot and other aquifers unusable.

Water Movement

Ground water moves from areas of recharge to areas of discharge, which under current conditions coincide with pumping centers. The recharge areas are indicated by the large patterned area of the water-level map (pl. 1); the pumping centers are generally located in areas indicated by closed contours. Water pumped in southwestern Louisiana may originate as rain falling on the outcrop area to the north, as flow from the Atchafalaya River to the east, or as water moving downward through the clays to the Chicot aquifer system from marshlands in the coastal area to the south. There is very little movement of ground water from the west toward Lake Charles because of pumping at Orange, Texas. Additional recharge is received through direct interconnections with underlying aquifers (Whitfield, 1975, p. 12), or directly from streams, such as the Calcasieu River in the reach above Kinder and the Vermilion River in the reach below Abbeville.

Recharge from the outcrop area in Beauregard and Allen Parishes and areas to the north supplies about 50 percent of the total water pumped from the Chicot aquifer system, and most of the water pumped in Calcasieu and Jefferson Davis Parishes, according to analog-model studies (A. L. Zack and A. N. Turcan, written commun., 1975). Recharge to the aquifer from the outcrop area in Evangeline Parish supplies less than 5 percent of the total water pumped. The amount of flow through Evangeline Parish is small because an east-west trending zone of low transmissivity (Fader and Harder, 1954) north of Ville Platte inhibits ground-water movement. On the water-level map (pl. 1) this zone is indicated by closely spaced water-level contours in central Evangeline Parish. In general, therefore, the amount of recharge in the outcrop area to the north is not determined solely by the amount of rainfall, but also by the aquifer's ability to transmit tne water away from the recharge area.

The Atchafalaya aquifer (Jones and others, 1956 p. 293) and the Chicot aquifer system are essentially one continuous hydrologic unit from St. Landry Parish to near St. Martinville. Water levels in the Atchafalaya River alluvium change with river stage. Water levels are higher in the alluvium, causing water to move down gradient to the west into the Chicot aquifer system. The water-level map (pl. 1) indicates recharge from the Atchafalaya alluvium because of the essentially north-base of freshwater to minimize saltwater coning. Further ground-water development in most of eastern Cameron Parish for domestic use and small municipal and industrial supplies should cause no significant changes in the rate of saltwater movement, but large industrial development should be carefully studied as saltwater encroachment could shorten the life of the water supply.

The aquifers in most of the western half of Cameron Parish probably have contained saline water since the sediments were deposited.

High-Chloride Water in the Lower Vermilion River Basin

The lower Vermilion River basin is the location of unique saltwater problems in the Abbeville unit and in the "upper sand" of the Chicot aquifer system (table 1). Salinity problems are not related to offshore saltwater encroachment, but represent local saltwater problems caused by: (1) movement of saltwater from the Vermilion River into the Abbeville unit, and (2) the upward movement of salty water from the "lower sand" into the "upper sand," which is increasing owing to pumping.

Abbeville unit.--The Abbeville unit of the Chicot aquifer system is the "shallow sand" described by Harder, and others (1967, p. 35). They stated, "This shallow sand is a distinct hydrologic unit throughout most of the [lower Vermilion River] basin and generally consists of fine to sandy silt at the top and grades downward within a few tens of feet into sand and gravel. The thickness of the sand usually ranges between 100 to 250 feet." Before large-scale irrigation began, ground-water discharge from the Abbeville unit supplied the base flow of the Vermilion River. However, because of ground-water withdrawals in Vermilion Parish and parishes to the north, water levels in the Abbeville unit gradually declined below the channel of the Vermilion River. By 1951, the river began recharging the aquifer in the Bancker area (fig. 7). Since that time brackish water has infiltrated the Abbeville unit on the infrequent occasions when brackish water was pushed that far upstream (Harder and others, 1967, p. 37-40). The saline-water contribution from the Vermilion River to the Abbeville unit has been very small in the Bancker area and the saline water that has infiltrated is being slowly flushed out. (See chlorograph of well Ve-626, fig. 8.) The Vermilion River at Bancker contains water of more than 200 mg/L chloride only 15 percent of the time (fig. 9). Flushing action (decreasing salinity) will continue until either the chloride concentration in the aquifer reflects the average annual chloride concentration of the river, the infiltration of rainwater continues to locally dilute the salty water in the aquifer, or saline water again recharges the aquifer in the Bancker area following an unusual hydrologic event, such as a series of very high tides accompanying storms. After the high tides occur, the flushing (or dilution) phase will be repeated.

The Abbeville unit in the reach of the Vermilion River between Little Bayou and the mouth is being recharged by brackish water more frequently than in the Bancker area because of tides bringing brackish water upstream during periods of low stream flow. Because of this the

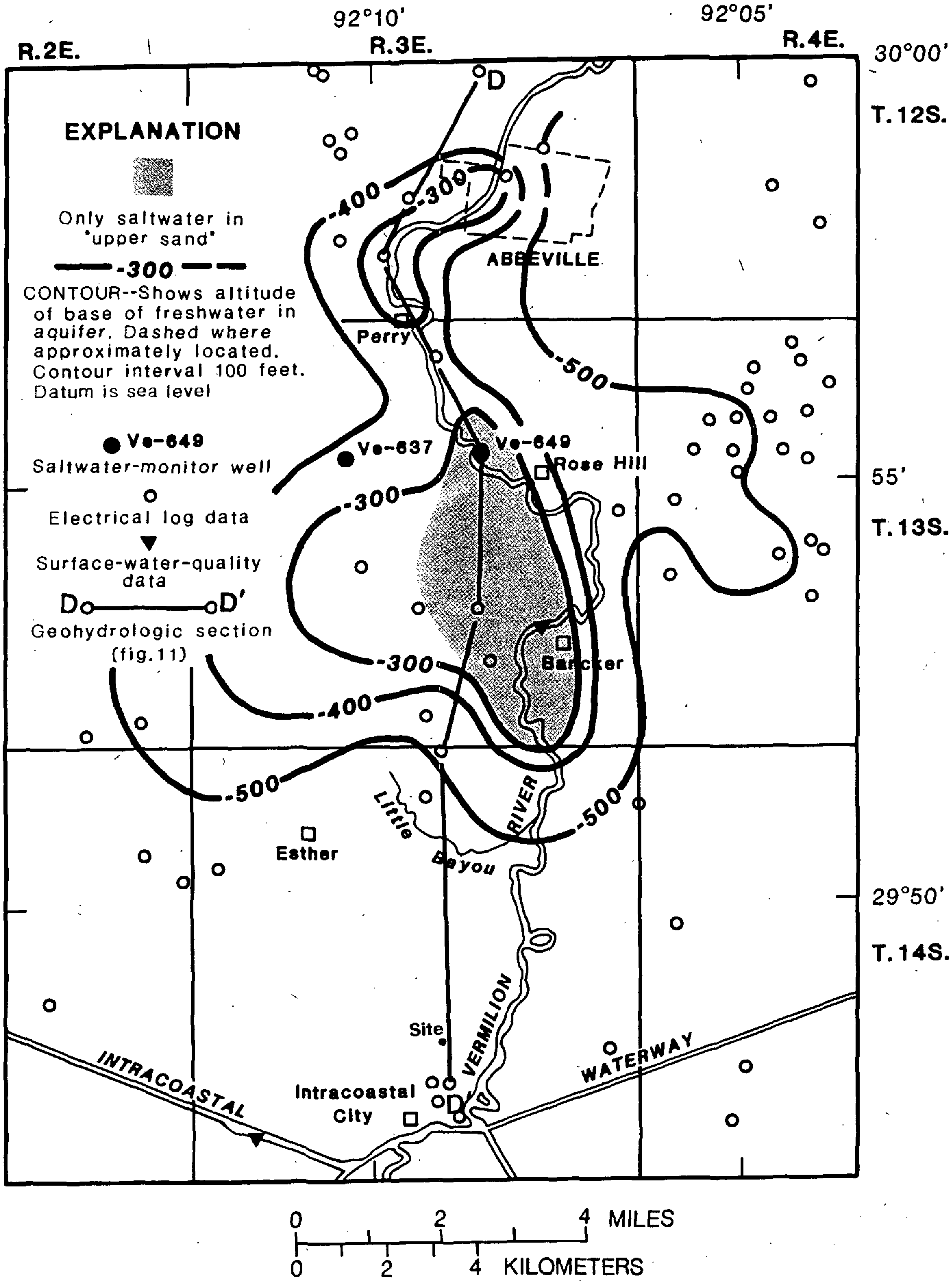


Figure 10.--Base of freshwater in the "upper sand" in the lower Vermilion River basin.

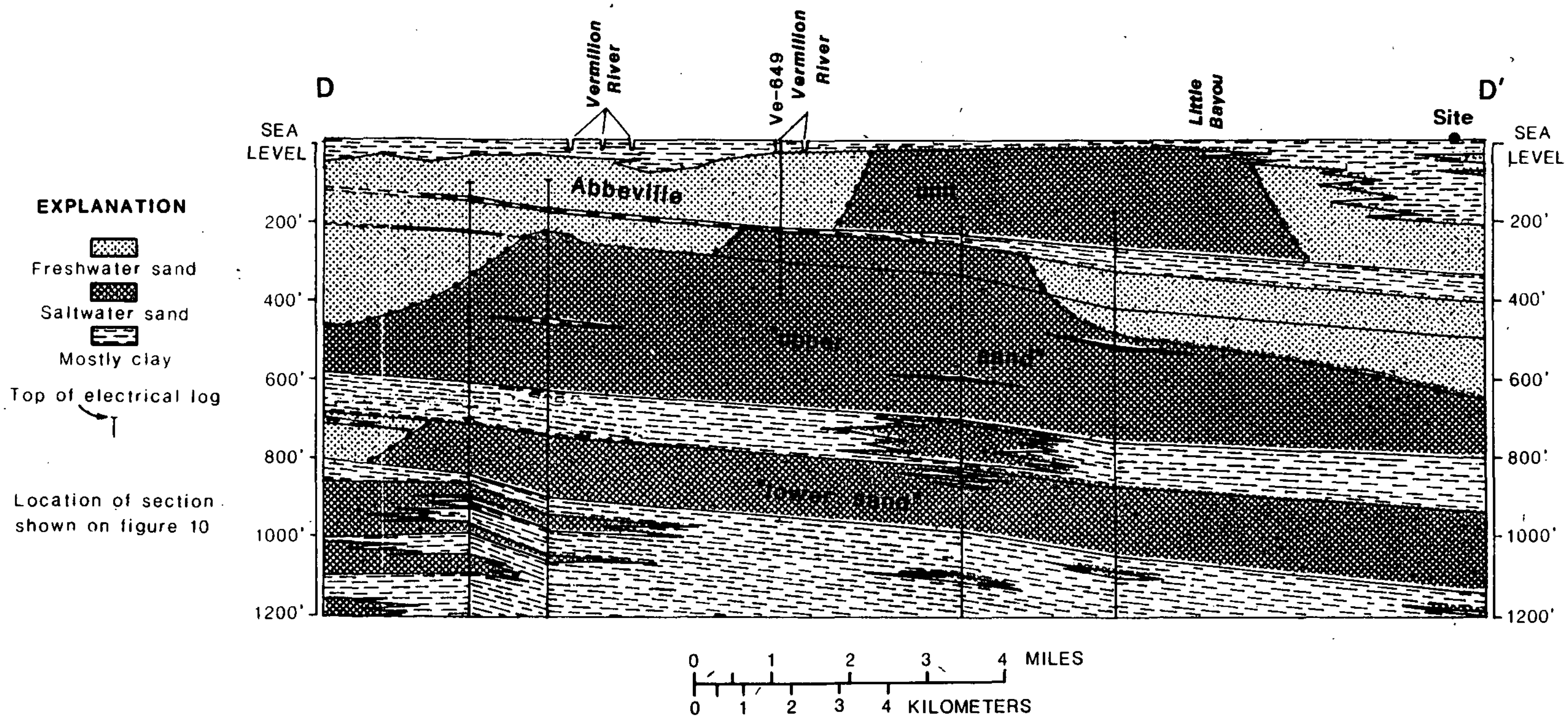


Figure 11.--North-south geohydrologic section along lower Vermilion River.

A line of wells injecting freshwater near the toe of the freshwater-saltwater transition zone, or in an area where the base of freshwater has a steep gradient, has the local effect of reducing or reversing the water-level gradient and generally slowing or temporarily stopping saltwater encroachment. The major drawback to injection wells is the cost of treating the injection water and the cost of maintaining the wells. (See Bruington and Seares, 1965.)

SUMMARY AND CONCLUSIONS

Saltwater encroachment is a potential problem in the three most heavily pumped units of the Chicot aquifer system--the "upper sand" east of Lake Charles and the "500-foot" and "700-foot" sands of the Lake Charles industrial area. Ground-water withdrawals have created pumping cones in all three aquifers, reversing the natural southerly gradients in the coastal areas. These reversed gradients are causing a very slow northward movement of the freshwater-saltwater interface, and some of the saltwater-monitor wells have shown a significant increase in chloride concentration.

This slow rate of saltwater movement is primarily caused by water-level gradients of less than 1 ft/mi in the coastal zone (wetlands areas and offshore). The gradients are low because of vertical recharge and the relatively small amount of ground-water development in the wetland areas.

Although there has been little change in chloride concentration, some areas of the "upper sand" are very susceptible to encroachment--such as along the Atchafalaya River basin near New Iberia, in western Vermilion Parish south of Gueydan, and along the Vermilion River south of Abbeville. In north-central Cameron Parish chlorides have increased more than 20 (mg/L)/yr at well Cn-92, primarily in response to irrigation pumping. The saltwater front is currently essentially static; but if pumping for rice irrigation increases significantly causing additional water-level declines, the northward movement of the saltwater will accelerate. Freshwater resources in areas irrigated for rice in southern Calcasieu and Jefferson Davis Parishes could deteriorate with the northward movement of saltwater.

Water-level declines in the rice-growing area increase the differential artesian pressure between the saline Chicot "lower sand" and the freshwater "upper sand," thereby increasing the movement of salty water upward through openings in the confining layer separating the two aquifers. Existing saltwater highs are now enlarging at a faster rate in response to water-level declines caused mostly by irrigation pumping. Local saltwater mounds and ridges, for example in Vermilion Parish, are enlarging in response to this mechanism.

The Abbeville unit of the Chicot aquifer system in Vermilion Parish has reflected the quality of water in the Vermilion River since water levels in the aquifer were drawn down below the river level. Near Bancker the Abbeville unit generally is recharged by freshwater more than 85 percent of the time; however, high tides may cause inland movement of seawater in the river and the temporary recharge of brackish water into the aquifer. This brackish water is then diluted and the salinity reduced because of recharge by the fresh river water that follows.

The Abbeville unit near Intracoastal City is also recharged directly from the Vermilion River. Because this area is near the mouth of the Vermilion River, the river water contains chloride concentrations exceeding 1,000 mg/L more than 4 months each year, generally during the low-flow season (August-November). This brackish water has been recharging the aquifer since 1951. The nearly continuous recharge of brackish water since that time has caused a saltwater body to grow beneath the river. Currently (1983), chloride concentrations are increasing 30 (mg/L)/yr north of the mouth of the Vermilion River and 5 (mg/L)/yr to the east, but there is probably saltwater movement in all directions. If current conditions continue, salty water in the Abbeville unit will begin moving into the "upper sand," which provides water to most of the high-capacity wells in the area. Saltwater recharge will continue along the Vermilion River until the upstream movement of brackish water from Vermilion Bay is controlled.

Increases in salinity of water in the "500-foot" sand of the Lake Charles industrial area are not related to coastal saltwater encroachment. The increases are mostly the result of vertical movement of saltwater from the "700-foot" sand related to changes in water level caused by pumping. The increases in chloride concentration noted by industries after 1970 were primarily caused by water-level declines from 1967 to 1969. Saltwater in the "700-foot" sand is moving laterally in response to pumping, and northward saltwater encroachment is evident in the lower half of Calcasieu Parish. The largest increase in chloride concentration observed to date (1982) is 25 (mg/L)/yr within the southern city limits of Lake Charles at well Cu-767. The lowest chloride concentration was 370 mg/L during 1965 and the highest 770 during 1981-82. The use of Sabine River water to replace ground-water withdrawals should lessen saltwater problems in the Lake Charles area.

Most of the current saltwater problems in the project area result from saltwater coning--where large-capacity wells tap a sand that contains saltwater at the base of the sand unit. Wells screened above the coastal freshwater-saltwater interface, and wells screened above local inland saltwater bodies, may have upconing problems. Such problems have been best documented locally in Vermilion, Jefferson Davis, and Calcasieu Parishes, but may occur near the freshwater-saltwater interface in all of the major sand units. Inland saltwater bodies include an area of at least 150 mi^2, and affected wells typically yield water having a chloride concentration of 50 to 500 mg/L.

Reference 4

RECORD OF COMMUNICATION	(Record of Item Checked Below) x Phone Call ___ Discussion ___ Field Trip ___ Conference ___ Other(Specify)	
To: Richard Minvielle Sellers Dubroc & Assoc. Abbeville, LA (318) 893-2808	From: Thomas A. Lensing, Jr. FOR FIT Biologist JS	Date: 11-28-89 Time: 1:35 p.m.

SUBJECT: Flood Potential and U.S. Census Factors

SUMMARY OF COMMUNICATION

Q: What is the current U.S. census factor for people per household in Vermillion Parish?

A: The number of people per household in Vermillion Paris is 2.98.

Q: What is the flood potential for a piece of land located 29°47'52" north latitude and 92°09'03" west longitude?

A: The area has a 1% chance of flooding every year. That would be in a 100 year floodplain.

CONCLUSIONS, ACTION TAKEN OR REQUIRED

INFORMATION COPIES
TO:

EPA FORM 1300-6 (7-72)
Replaces EPA HQ Form 5300-3 which may be used until Supply is Exhausted.

RECORD OF COMMUNICATION	(Record of Item Checked Below) x Phone Call ___Discussion ___Field Trip ___Conference ___Other(Specify)	
To: Elray Schexnaider J.E. Schexnaider & Assoc. Abbeville, LA (318) 893-8397	From: Thomas A. Lensing, Jr. FOR FIT biologist JS	Date: 12-4-89 Time: 11:05

SUBJECT: Land Use and Soil Types in the Area of Larry Landry Dump

SUMMARY OF COMMUNICATION

Q: Could you tell me what the land is used for in the area around the dump?

Q: Mostly industrial with intermittent farmland. The industry consists of off-shore oil and gas support facilities. The farmlands are used to grow rice and crawfish.

Q: What are the hydrologic characteristics of the soils?

A: Not much is known about it. I would say that the soils in the wetlands have a high runoff potential whereas the soils in the wooded areas would have a low runoff potential.

CONCLUSIONS, ACTION TAKEN OR REQUIRED

INFORMATION COPIES TO:

EPA FORM 1300-6 (7-72)
Replaces EPA HQ Form 5300-3 which may be used until Supply is Exhausted.

RECORD OF COMMUNICATION	(Record of Item Checked Below) ___Phone Call _x_Discussion ___Field Trip ___Conference ___Other(Specify)	
To: (b) (6) [redacted] and Paul Conzelmann	From: Thomas A. Lensing, Jr. FOR FIT Biologist JL	Date: 11-14-89 Time: 12:00

SUBJECT: Larry Landry Dump

SUMMARY OF COMMUNICATION

I ashed (b) (6) [redacted] and Mr. Conzelmann to summarize the site's history and operations.

The land is owned by (b) (6) [redacted]. (b) (6) [redacted] leased part of his land to Larry Landry. Mr. Landry used the land as a dump for various oil field wastes. The site operated for a couple of years in the early 1980s. Mr. Landry used a truck with an 18 yard bend, like a garbage truck, to haul and dispose of the waste.

When (b) (6) [redacted] raised the rent on leasing his land, Mr. Landry abandoned the site.

Waste handling and disposal practices used by Mr. Landry were minimal. The waste was indiscriminately dumped on the ground. There were no containment structures on-site.

CONCLUSIONS, ACTION TAKEN OR REQUIRED

INFORMATION COPIES TO:

EPA FORM 1300-6 (7-72)
Replaces EPA HQ Form 5300-3 which may be used until Supply is Exhausted.

REF. 07

SUBRA COMPANY

NO. 11 SOUTHWEST DRIVE • SOUTHWEST INDUSTRIAL PARK • P. O. BOX 9813 • NEW IBERIA, LA. 70562-9813 • (318) 367-2216

August 17, 1984

[redacted]

Dear Johnny:

Subra Company personnel at your request met in Intracoastal City with yourself and [redacted] on the morning of August 14, 1984. [redacted] then provided [redacted] above mentioned people onto a portion of his land in the Intracoastal City area which he designated as the site previously leased to Larry Landry for disposal of waste. [redacted] then gave a general description of the area and the method used to dispose of the waste. Subra Company personnel looked over the site and designated sampling locations.

The results of the analyses performed on the samples collected from the site are enclosed. Samples of soil were collected by boring with a hand auger and digging with hand tools until a layer of solid material hampered further excavation. The soil samples ranged from one-foot composite samples to samples of 18". The solid waste on the site was visible on the surface in some areas and buried up to 18 inches deep in other areas. The results of the soil samples indicate contamination of the soil by excessive levels of salt, oil and grease, barium, cadmium, chromium, lead, and zinc.

Samples of water were collected from the marsh on the southeast side of the site, from a surface depression on the southwest side of the barren area, and from the ground on the northeast corner of the barren area. The ground on the northeast corner of the barren area gave way under the weight of a man. An excavation of the area resulted in groundwater being encountered at 15". The results of the water samples indicate contamination of the surface water in the barren area by salt, oil and grease, and barium. The marsh sample indicated the surface water salt concentration was not due to tidal influence but leaching from the soil on which it had collected, presumably due to rainfall. The groundwater sample was contaminated by excessive levels of salt, oil and grease, barium, cadmium, chromium, lead, and zinc. According to the criteria for hazardous waste, the groundwater which is a leachate on the site exceeds the toxicity levels established for barium, cadmium, chromium, lead, and zinc. This would indicate the waste at the site is hazardous.

A pile of exposed drums was present on the site and around the base of an oak tree 500 feet southeast of the barren area. The drums southeast of the area contained substantial quantities of waste as well as some contained collected rainwater. Samples were collected of rainwater in the drums, a black solidified tar-like material on the ground, and the ground saturated with the waste. The salt content of the tar-like material and the ground were extremely elevated. The rainwater had leached some salt and oil and grease from the drum contents.

In summary, the soil and water samples indicate the site contains waste with high concentrations of salt, oil and grease, barium, cadmium, chromium, lead, and zinc. The extent of the contamination both vertically and horizontally cannot be determined by this initial survey of the area. Also, the possibility of contamination by organic compounds should be investigated.

The samples will be retained should you require additional parameters be analyzed.

Sincerely,

Wilma Subra
President

ml

Enclosures

cc: [redacted]

Chemical Analyses of Soil Samples Collected August 14, 1984 From a Site Previously Leased to Larry Landry in Intracoastal City for Disposal of Waste

Location	Salt (ppm)	pH	Oil & Grease (ppm)	Barium (ppm)	Cadmium (ppm)	Chromium (ppm)	Lead (ppm)	Zinc (ppm)
Center of barren area (1 foot composite sample)	11,428	6.49	7,702	Composite:				
				250	12	400	560	11,150
Center of barren area (18" layer)	7,425	5.58	8,259					
Northeast corner of barren area* (15" layer)	6,563	8.51	5,195					
South side of barren area (11" layer)	20,558	5.74	503	900	2	135	104	455
Surface scraping on an east-west transect across site	11,262	6.55						

ppm = parts per million

*The ground gave way under the weight of a person. Groundwater encountered at 15".

Chemical Analyses of Water Samples Collected August 14, 1984 From a Site Previously Leased to Larry Landry in Intracoastal City for Disposal of Waste

Location	Salt (ppm)	pH	Oil & Grease (ppm)	Barium (ppm)	Cadmium (ppm)	Chromium (ppm)	Lead (ppm)	Zinc (ppm)
Groundwater from north-east corner of barren area (15" deep)	11,766	8.51	3,275	1,950	4	227	133	276
Surface water from small surface sump area on southwest side of barren area	5,528	6.98	37	1.3	N.D.	N.D.	N.D.	N.D.
Surface water from marsh at southeast corner of site	652	6.60						

N.D. = None Detected

ppm = parts per million

Chemical Analyses of Waste Samples Collected August 18, 1984 From a Site Previously Leased to Larry Landry in Intracoastal City for Disposal of Waste

Sample	Salt (ppm)	pH	Oil and Grease (ppm)
Rainwater collected in drum containing solidified black tar-like material	248	7.47	47
Sample of ground saturated with black tar-like material	3,870	5.44	
Sample of solidified black tar-like material	1,892	4.23	

ppm = parts per million

REF. 08

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200

DALLAS, TEXAS 75202-2733

November 21, 1989

MEMORANDUM

SUBJECT: Sole Source Aquifers

FROM: Deborah A. Vaughn-Wright DVW
Region 6 NPL Coordinator
Superfund Site Assessment Section (6H-MA)

TO: Ed Sierra
FIT RPO
Surveillance Hazardous Waste Section (6E-SH)

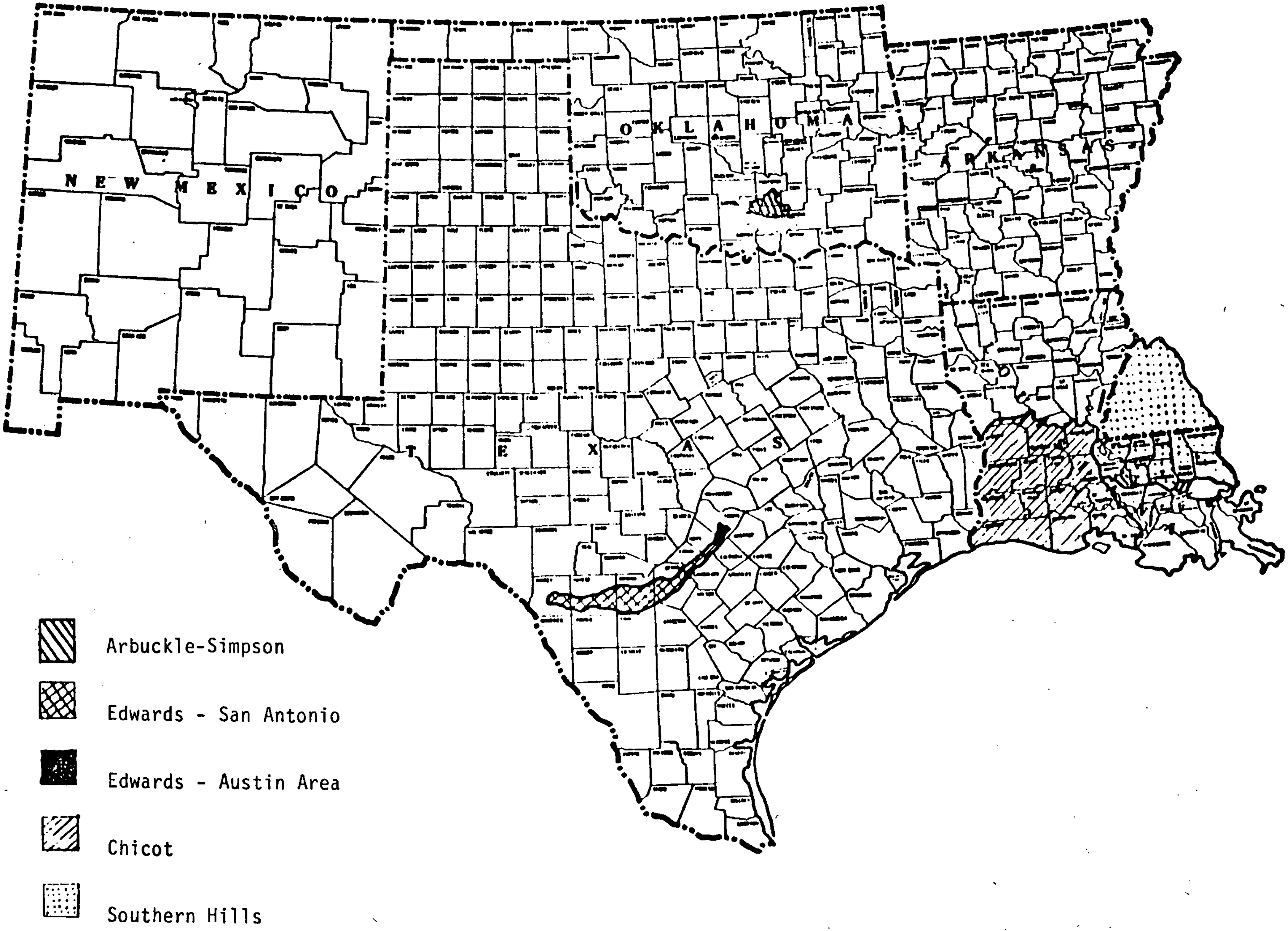
Please provide the FIT with these maps showing the Sole Source Aquifers in Region 6. If the FIT ever have any questions about Sole Source Aquifers they may contact Clay Chesney at (214) 655-6446.

RECEIVED
US EPA DALLAS, TEXAS
1989 NOV 22 A 11:46
SURVEILLANCE BRANCH
6E-S

1989

EPA REGION VI

Sole Source Aquifers



updated 1-16-85, in separate document

REF. 09

INITIAL DRAFT

LOUISIANA WATER CONTROL REGULATIONS

DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF WATER RESOURCES

MARCH 9, 1984

This public document was published at a total cost of $1200.00 200 copies of this document were published in this first printing at a cost of $150.00. The total cost of all printings of this document, including reprints, is $1200.00. This document was published by the Louisiana Department of Environmental Quality, Post Office Box 44066, Baton Rouge, Louisiana 70804, to develop water control regulations under authority of the Louisiana Environmental Quality Act, L.R.S. 30:1094 et seq. This material was printed in accordance with standards for printing by State Agencies established pursuant to R.S. 43:31.

Chapter 6. WATER QUALITY STANDARDS

Bacterial Criteria (BAC)

1. Primary Contact Recreation
2. Secondary Contact Recreation
3. Public Water Supply
4. Shellfish Propagation

Designated Water Uses

A. Primary Contact Recreation
B. Secondary Contact Recreation
C. Propagation of Fish and Wildlife
D. Public Water Supply
E. Shellfish Propagation
F. Agriculture
G. Outstanding Natural Resource Waters

AGENCY ID	STREAM DESCRIPTION	A	B	C	D	E	F	G
		DESIGNATED WATER USES						
060010	Vermilion River - Headwaters to Intracoastal Waterway	X	X	X			X	
060020	Vermilion River - Intracoastal Waterway to Vermilion Bay (Estuarine)	X	X	X				
060030	Freshwater Bayou Canal - Intracoastal Waterway to Control Structure (Estuarine)	X	X	X				
060040	Bayou Petite Anse - Headwaters to Bayou Carlin (Estuarine)	X	X	X				
060050	Bayou Carlin (Delcambre Canal) - Lake Peigneur to Bayou Petite Anse (Estuarine)	X	X	X				
006060	Bayou Tigre - Headwaters to Bayou Petite Anse (Estuarine)	X	X	X				
060070	Bayou Petite Anse - Bayou Carlin to Vermilion Bay (Estuarine)		X	X				
060080	Lake Peigneur (Estuarine)	X	X	X				
060090	Indian Creek and Indian Creek Reservoir	X	X	X	X			
060100	Cocodrie Lake	X	X	X				
060110	Spring Creek - Headwaters to Cocodrie Lake (Scenic)	X	X	X				X
060120	Bayou Cocodrie - from U. S. Hwy. 167 to the Bayou Boeuf - Cocodrie Diversion Canal - Bayou Beouf and Bayou Courtableau (Headwaters of Bayou Teche to Interstate 10 (Scenic)	X	X	X				X

REF. 10

ecology and environment, inc.

ROSSLYN CENTER, 1700 NORTH MOORE ST., ARLINGTON, VA 22209, TEL. 703-522-6065, TELEX 650-267-6032

International Specialists in the Environment

MEMORANDUM

TO: Phase II Project Managers

CC: Paul Beam, EPA HQ
Kevin Donovan, EPA HQ
Jo Johnson, E & E HQST
Michele Mrozek, NUS HQST
Ross Dimmick, NUS HQST

FROM: Lauren Ray, E & E HQST LR

THRU: Jeff Tuttle, E & E ZPMO JCT

DATE: August 5, 1988

SUBJECT: Phase II Testing Project: Two-year, 24-hour Rainfall Map; GEMS Data

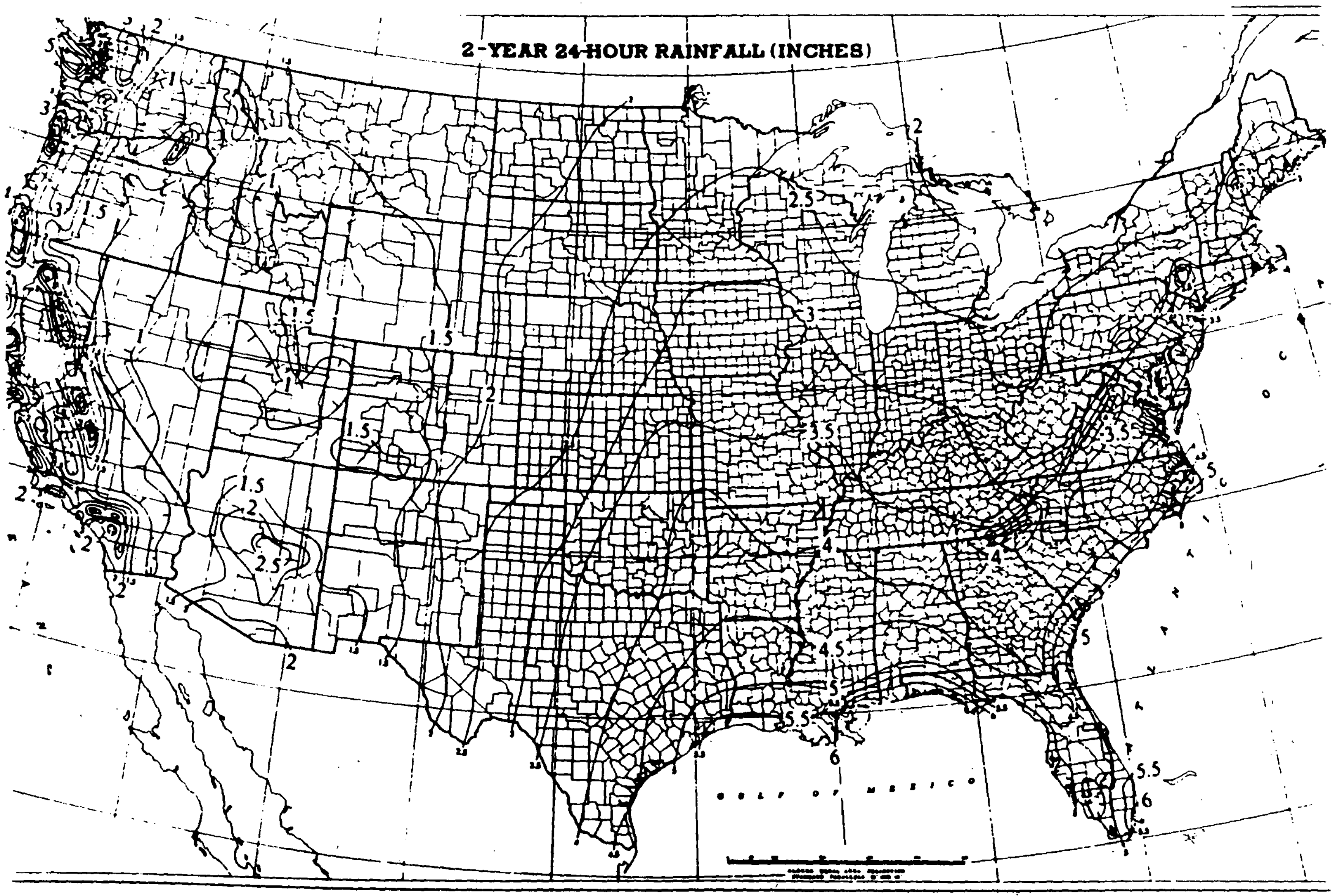
DISTRIBUTION:
Kathy Getty, Region V
Jonathan Stewart, Region VI
Patty Roberts, Region VII
John Stetson, Region VIII
Beatrice Thys, Region IX
Bob Duffner, Region X

DOCUMENT NUMBER: LJR1-F023

Enclosed is a 2-year, 24-hour rainfall map. The reference for this map is: Herschfield, D.M., 1961, Rainfall Frequency Atlas of the United States. U.S. Weather Bureau Technical Paper No. 40. Use a later map version or regional data, if available. If not available, this map will suffice for use during PreScore.

Also enclosed are GEMS data for your region. Refer to guidance provided in August 3, 1988 memorandum for utilizing GEMS data. Please call with any questions or concerns.

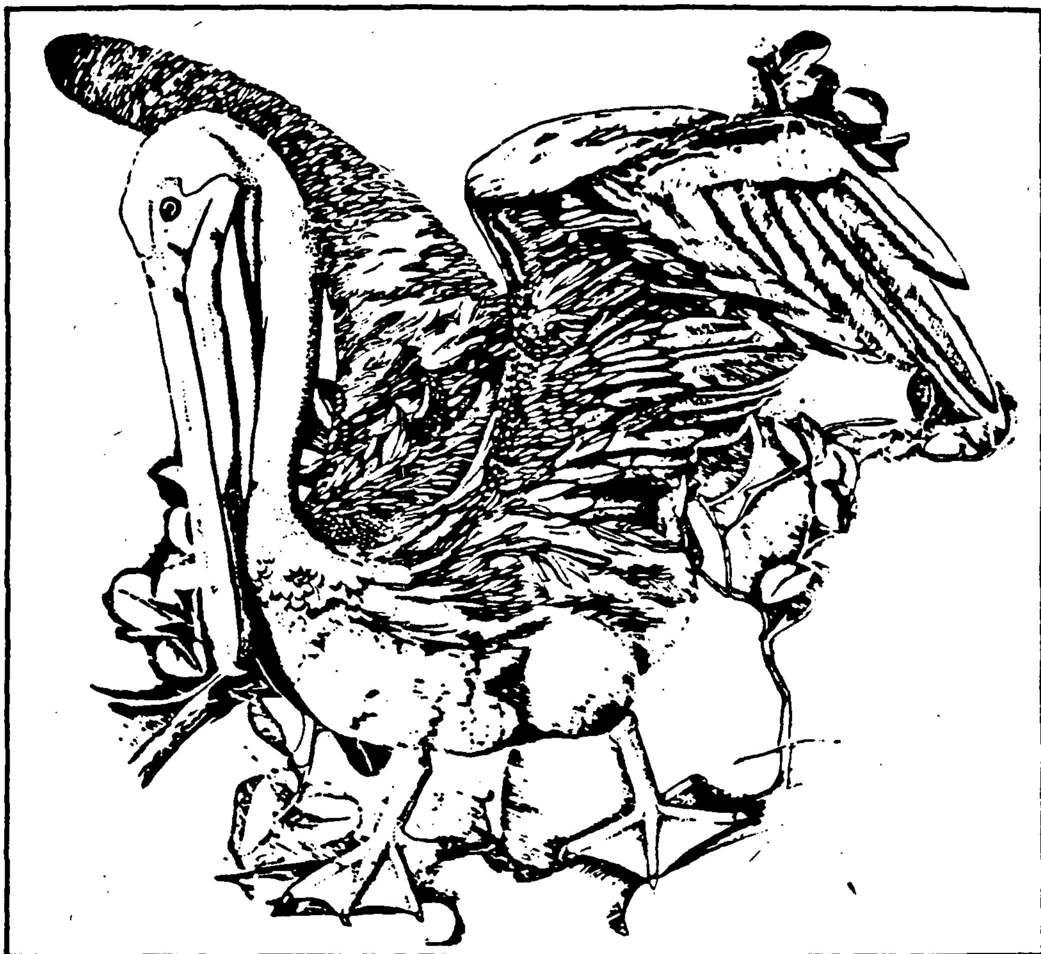
Enclosures


2-YEAR 24-HOUR RAINFALL (INCHES)
GULF OF MEXICO

OBS	STATE	NAME		LATNUM	LONNUM	NETPREC
1046	15	SCOTTSVILLE 3 SSW		36.44	86.13	24.5491
1047	15	MAYFIELD RADIO WNGO		36.47	88.38	25.3755
1048	15	BAXTER		36.51	83.20	23.6126
1049	15	HOPKINSVILLE		36.51	87.30	24.3419
1050	15	BARBOURVILLE		36.52	83.53	23.3151
1051	15	RUSSELLVILLE		36.52	86.53	26.2493
1052	15	SUMMER SHADE		36.53	85.43	23.9527
1053	15	BOWLING GREEN FAA AP		36.58	86.26	23.4509
1054	15	LOVELACEVILLE		36.58	88.50	22.9992
1055	15	MANCHESTER 4 SE		37.06	83.43	22.4824
1056	15	PADUCAH SEWAGE PLANT		37.06	88.36	20.2830
1057	15	SOMERSET 2 N		37.07	84.37	23.3421
1058	15	PRINCETON 1 SE		37.07	87.52	22.5323
1059	15	MAMMOTH CAVE PARK		37.11	86.05	24.6686
1060	15	GREENSBURG		37.15	85.30	23.8502
1061	15	CAMPBELLSVILLE 2 SSW		37.19	85.22	22.6528
1062	15	MADISONVILLE 1 SE		37.19	87.29	20.9180
1063	15	BEAVER DAM		37.25	86.52	20.2457
1064	15	JACKSON WSO AP		37.26	83.19	19.7651
1065	15	FORDS FERRY DAM 50		37.28	88.06	18.8130
1066	15	LEITCHFIELD 2 N		37.31	86.18	22.2079
1067	15	BEREA COLLEGE		37.34	84.18	19.6143
1068	15	DANVILLE		37.39	84.46	21.4832
1069	15	HENDERSON 7 SSW		37.45	87.38	18.9768
1070	15	OWENSBORO 2 W		37.46	87.09	20.4014
1071	15	BARDSTOWN		37.48	85.28	21.1779
1072	15	WEST LIBERTY		37.55	83.15	19.7645
1073	15	LEXINGTON WSO	R	38.02	84.36	19.7394
1074	15	MOUNT STERLING		38.04	83.56	19.7741
1075	15	FARMERS 1 WNW		38.09	83.33	18.7360
1076	15	LOUISVILLE WSO	R	38.11	85.44	19.3259
1077	15	SHELBYVILLE		38.13	85.16	20.0068
1078	15	FRANKFORT LOCK 4		38.14	84.52	18.9018
1079	15	ANCHORAGE		38.16	85.32	21.4009
1080	15	ASHLAND		38.27	82.36	16.5790
1081	15	VANCEBURG		38.35	83.20	18.1494
1082	15	WILLIAMSTOWN 3 NW		38.39	84.37	18.9310
1083	15	MAYSVILLE SEWAGE PLANT		38.41	83.47	19.6983
1084	15	CARROLLTON LOCK 1		38.41	85.11	16.9412
1085	15	COVINGTON WSO	R	39.04	84.40	17.0404
1086	16	HOUMA		29.35	90.44	21.5182
1087	16	MORGAN CITY		29.41	91.11	20.9248
1088	16	VERMILION LOCK		29.47	92.12	21.0188
1089	16	FRANKLIN 3 NW		29.49	91.33	21.2264
1090	16	HACKBERRY 8 SSW		29.53	93.25	16.9338
1091	16	N O AUDUBON WSO	R	29.55	90.08	19.8387
1092	16	NEW ORLEANS MOISANT WSO		29.59	90.15	20.6237
1093	16	LAKE ARTHUR 10 SW		30.00	92.48	19.1572
1094	16	NEW IBERIA 5 NW		30.03	91.53	17.5543
1095	16	RESERVE		30.04	90.34	22.6758
1096	16	DONALDSONVILLE 3 E		30.06	90.56	21.1444
1097	16	LAKE CHARLES WSO		30.07	93.13	16.1362
1098	16	CARVILLE 2 SW		30.12	91.07	20.3079
1099	16	LAFAYETTE FAA AIRPORT		30.12	91.59	19.2050
1100	16	JENNINGS		30.15	92.40	21.2286

REF. 11

THREATENED AND ENDANGERED ANIMALS OF LOUISIANA



SARA SMITH "BROWN PELICAN" ©

Larry Landry Dump
LAD 985 169 804

Compiled by M.B. Watson

Louisiana Department of Wildlife and Fisheries

1981

Range of the Atlantic Ridley Turtle

<u>*Lepidochelys kempii*</u>

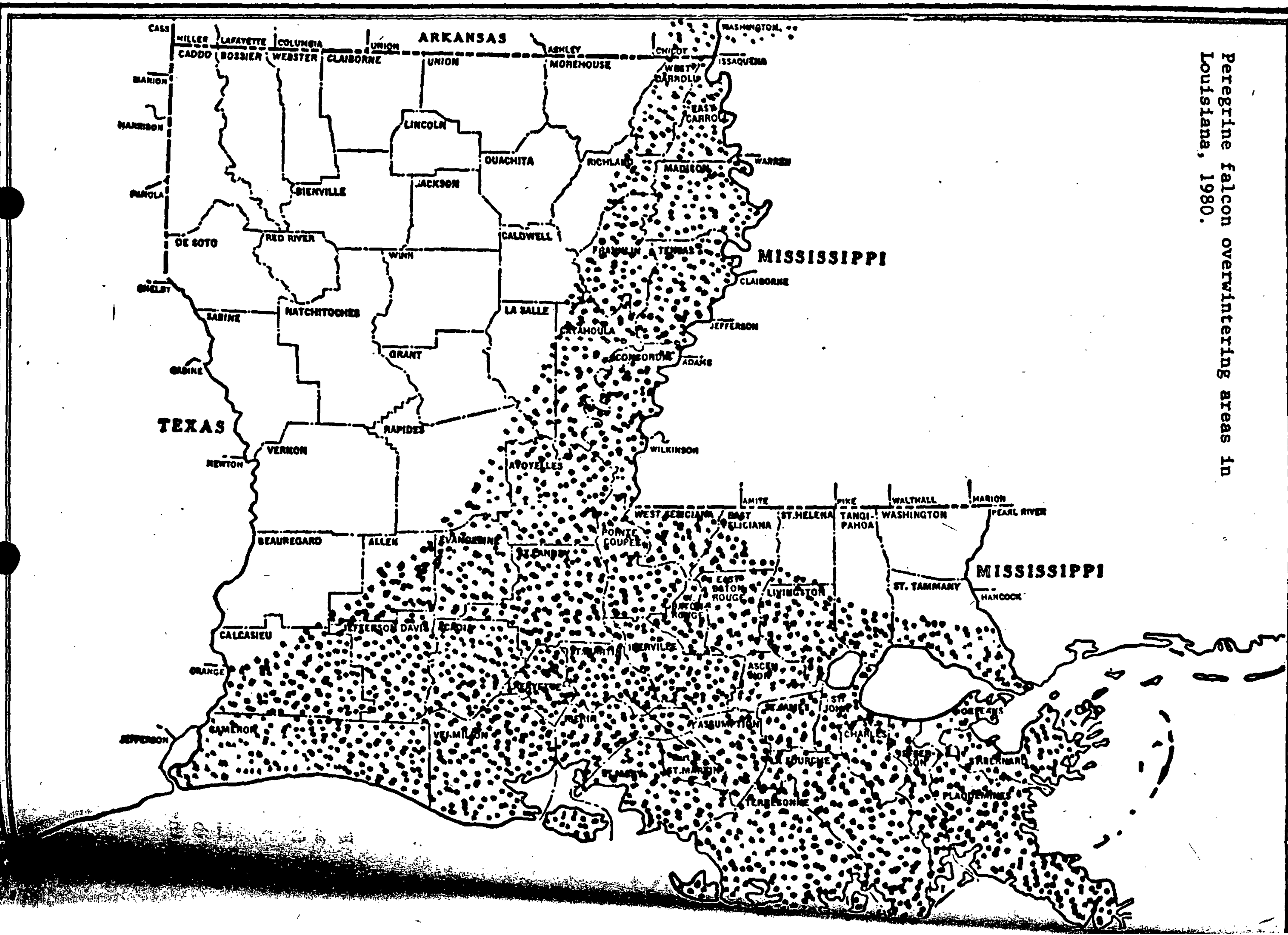
8

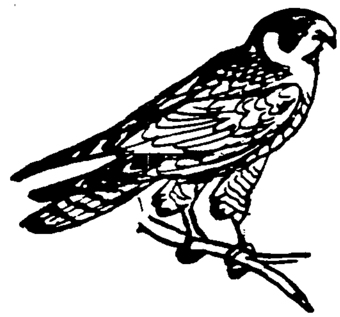
THREATENED AND ENDANGERED SPECIES OF LOUISIANA

Common Name	Scientific Name	Status[1]
Panther, Florida	*Felis concolor coryi*	E
Wolf, Red	*Canis rufus*	E
Whale, Black Right	*Eubalaena glacialis*	E
Whale, Sei	*Balaenoptera borealis*	E
Whale, Giant Sperm	*Physeter catodon*	E
Seal, Caribbean Monk	*Monachus tropicalis*	E
Crane, Whooping	*Grus americana*	E
Eagle, Bald	*Haliaeetus leucocephalus*	E
Falcon, American Peregrine	*Falco peregrinus anatum*	E
Falcon, Arctic Peregrine	*Falco peregrinus tundrius*	E
Pelican, Brown	*Pelecanus occidentalis*	E
Warbler, Bachmans	*Vermivora bachmanii*	E
Woodpecker, Ivory-billed	*Campephilus principalis*	E
Woodpecker, Red-cockaded	*Picoides (=Dendrocopos) borealis*	E
Alligator, American	*Alligator mississipiensis*	E, T, T(s/a)
Turtle, Atlantic ridley	*Lepidochelys kempii*	E
Turtle, Green Sea	*Chelonia mydas*	T
Turtle, Hawks [illegible]	*Eretmochelys imbricata*	E
Turtle, Loggerhead Sea	*Caretta caretta*	T
Turtle, Leatherback	*Dermochelys coriacea*	E

1. E = Endangered, T = Threatened, T(s/a) = Threatened, similar in appearance to an endangered species, but not endangered in the area of occurrence.

Peregrine falcon overwintering areas in Louisiana, 1980.





PEREGRINE FALCON
Falco peregrinus anatum
F. p. tundrius

The peregrine falcon is the famous "duck hawk" and has become rare in the U.S. dur to chlorinated hydrocarbon contamination in the aquatic environment.

DESCRIPTION: The head of the Peregrine Falcon is black with heavy moustachial stripes. The upper body is slate-blue barred with dark brown. The primary feathers are dark brown, but the tail feathers are barred like the back tipped with light yellow-brown. The throat and belly are white to sienna-orange with narrow stripes on the chest and dark brown bars on the belly and flanks. The beak is slate-blue with a yellow cere, the eyes are dark brown and the feet and legs are yellow to greenish-yellow with black claws. The birds range in size from 13-19 inches. The females are much larger than the male.

PREFERRED HABITAT: The species in Louisiana is likely to be found only near the Gulf. The preferred habitat of the Peregrine is rocky ledges, however they will nest in trees in flat terrain. There are no breeding Peregrines in Louisiana.

FOOD HABITS: The Peregrine falcon feeds primarily on other birds. They usually hunt their prey in the air and kill by diving on the flying bird striking it with their talons. They then catch the dead bird in air or follow it to the ground where they break the neck of its prey. Primary prey are bluejays, flickers, meadowlarks and pigeons. As indicated above, the falcon will also take ducks. The falcon's eyes are placed so it can see straight ahead, to the sides, or below.

LIFE HISTORY: Falcons usually are sexually mature at three years. After mating, the eggs are laid in clutches of four usually in late March and April. Incubation last about 33 days. The female does most of the incubating while the male hunts.

The Falcons prefer high places such as cliffs to build their nests, but they will utilize buildings in areas where there are abundant pigeon populations.

ATLANTIC RIDLEY TURTLE

<u>Lepidochelys kempii</u>

The Atlantic ridley is the smallest of the Atlantic sea turtles. If captured it becomes hysterical and will often die without apparent cause. The ridley has been used for food and probably still is in places where environmental contiousness is low or where environmental law is flagrantly ignored. This comment holds for all sea turtles.

DESCRIPTION: The Atlantic ridley is our only sea turtle with an almost circular carapace which is from 23 to 27 1/2 inches long. Adult ridleys weigh between 80-100 pounds. The turtle is olive green above and yellow on the underside. The ridley has 5 costal scutes (plates on the shell) with 4 enlarged scutes underneath along the margin on the bridge. It also has a small internal scute at the candal (tail) end.

PREFERRED HABITAT AND RANGE: The optimum habitat of the Atlantic ridley appears to be shallow water, associated with red mangrove. Its range is chiefly in the Gulf of Mexico occasionally appearing along the Atlantic coast as far north as Nova Scotia in summer.

FOOD HABITS: Based upon stomach analysis the only food taken by the turtle is crabs although it is likely that other food is taken.

LIFE HISTORY: Very little is known about the ridley except that it apparently lays its eggs in the Florida keys during the three winter months.

REF. 12

MITRE

26 May 1988
W52-219

Ms. Lucy Sibold
U.S. Environmental Protection Agency
401 M Street, S.W.
Room 2636, Mail Code WH-548A
Washington, D.C. 20460

Dear Ms. Sibold:

Enclosed is a copy of the draft revised HRS net precipitation values for 3,345 weather stations where data were available. The data are presented by state code, station name, latitude longitude, and net precipitation in inches. A list of state codes is also enclosed.

The net precipitation values are provided to assist the Phase II Field Testing efforts. It is suggested that the value from the nearest weather station in a similar geographic setting be used as the net precipitation value for a site.

If there are any questions regarding this material, please contact Dave Egan at (703) 883-7866.

Sincerely,

Andrew M. Platt
Group Leader
Hazardous Waste Systems

AMP:DEE/hme

Enclosures

cc: Scott Parrish

The MITRE Corporation
Civil Systems Division
7525 Colshire Drive, McLean, Virginia 22102-3481
Telephone (703) 883-6000 Telex 248923

FIELD NAME	FIELD DEFINITION
STATE-NUMBER	Characters 1-2 Cooperative State Code for each State.

STATE CODE LISTING

01 Alabama	28 New Jersey
02 Arizona	29 New Mexico
03 Arkansas	30 New York
04 California	31 North Carolina
05 Colorado	32 North Dakota
06 Connecticut	33 Ohio
07 Delaware	34 Oklahoma
08 Florida	35 Oregon
09 Georgia	36 Pennsylvania
10 Idaho	37 Rhode Island
11 Illinois	38 South Carolina
12 Indiana	39 South Dakota
13 Iowa	40 Tennessee
14 Kansas	41 Texas
15 Kentucky	42 Utah
16 Louisiana	43 Vermont
17 Maine	44 Virginia
18 Maryland	45 Washington
19 Massachusetts	46 West Virginia
20 Michigan	47 Wisconsin
21 Minnesota	48 Wyoming
22 Mississippi	49 Not Used
23 Missouri	50 Alaska
24 Montana	51 Hawaii
25 Nebraska	66 Puerto Rico
26 Nevada	67 Virgin Islands
27 New Hampshire	91 Pacific Islands

STATION-NUMBER	Characters 3-6 Cooperative Station Number Range = 0001-9999.
DATA-CODE	Character 7 Data Indicator Code

1 = Maximum Mean Temperature
2 = Minimum Mean Temperature
3 = Average (Mean) Temperature
4 = Heating Degree Days
5 = Cooling Degree Days
6 = Precipitation (1951-80 Normals only)

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